

**AMENDMENTS TO THE SPECIFICATION:**

*Please replace the paragraph at Page 1, lines 5-10, with the following:*

Technical Field

The present invention relates to a fluoro-resin composition suitable for molding of sliding ~~mechanic~~ mechanical parts etc. [In] The present invention more precisely [it] relates to a fluoro-resin composition which has lubricity, and further has superior friction and wearing resistance and compression creep resistance.

*Please replace the paragraphs bridging Page 1, line 23, to Page 2, line 19 with the following:*

However, as use conditions of those parts become severe, parts which have not only lubricity and heat resistance but are also [is] hard to be worn due to friction and [is] hard to be deformed even under strong stress have been demanded. By the way, there is a description that a resin composition containing zinc oxide whisker as filler can be used for molding materials of ~~electricity~~ electrical parts because it is superior in static electricity diffusion property and sliding property, in Japanese Patent No. 3041071. However, from a point of view to wearing resistance and compression creep resistance, more improvement [to] in the molded materials is demanded.

Disclosure of the present invention

The object of the present invention is to provide a resin composition suitable for molding of sliding parts that [have] has lubricity and heat-resistant property and is further superior in friction and wearing resistance and compression creep resistance. The present invention relates to a fluoro-resin composition comprising ~~tetrafluoroethylene~~ tetrafluoroethylene polymer, zinc oxide whisker and granular filler having average particle size of not more than 200 $\mu$ m and/or fibrous filler having average fiber length of not more than 500 $\mu$ m.

In the resin composition, the composition comprising 20-90% by weight of the tetrafluoroethylene polymer, 5-40% by weight of the zinc oxide whisker and 2-40% by weight of the filler, wherein the total quantity of the three components is 100% by weight, is a preferable embodiment.

*Please replace the paragraph at Page 4, lines 15-20, with the following:*

Zinc oxide whisker containing such a tetrapod-shaped whisker is preferable because it does not affect [to] properties such as lubricity, wearing resistance or compression creep resistance even when a needle-shaped part is partially damaged during mixing with each component constituting the resin composition or during molding the resin composition.

*Please replace the paragraphs bridging Page 7, line 15, to Page 8, line 22, with the following:*

#### Examples

The present invention will be explained by using examples in more detail but it is not limited to the examples.

At first, raw materials used are shown below.

- (a) Tetrafluoroethylene homopolymer: It is abbreviated PTFE.  
Average particle size 35 $\mu$ m, Melting point 327°C  
Product from DuPont Mitui Mitsui Fluorochemicals Co, Ltd.  
Grade name: Teflon (registered trade mark) 7-J
- (b) Zinc oxide whisker:  
Diameter of a needle-shaped staple fiber 0.2 to 30 $\mu$ m,  
Length of a needle-shaped staple fiber 2 to 50 $\mu$ m.  
Product from Matsushita Electric Industrial Co., Ltd.  
Trade name: Pana-Tetra
- (c) Carbon fiber:  
Average fiber diameter 14.5 $\mu$ m, Average fiber length 120 $\mu$ m  
Product from Kureha Chemical Industry Co. Ltd.
- (d) Copper powder:  
Average particle size 26 $\mu$ m  
Product from Fukuda Metal Foil & Powder Co. Ltd.
- (e) Graphite powder:  
Average particle size 20 $\mu$ m  
Product from Oriental Sangyo Co. Ltd.
- (f) Coke[s] powder:  
Average particle size 20 $\mu$   
Product from Nippon Carbon Co. LTD

- (g) Glass fiber:  
Average fiber diameter 10.5 $\mu$ m, Average fiber length 20 $\mu$ m  
Nitto Boseki Co. Ltd.

(Examples 1 to 5) (Comparative Examples 1 to 5)

The tetrafluoroethylene homopolymer, zinc oxide whisker and various fillers are used at table 1 and they mixed uniformly using Henshell Henschel mixer to obtain the resin compositions.

Each resin composition obtained was preformed under pressure of 700[MP]kg/cm<sup>2</sup> and then sintered at 370°C for three hours to obtain a cylinder-shaped molded article of a diameter of 50mm height of 100mm.

Please replace Table 1 at Page 10 with the following:

Table 1

	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4	Comp. Ex. 5	Comp. Ex. 6	Comp. Ex. 7
Resin composition (wt %)												
• PTFE	80.0	70.0	55.0	57.0	70.0	100	90.0	80.0	90.0	70.0	67.0	80.0
• Zinc oxide whisker	10.0	15.0	20.0	10.0	10.0	-	10.0	20.0	-	-	-	-
• Carbon fiber	10.0	15.0	10.0	-	-	-	-	-	10.0	15.0	-	-
• Copper powder	-	-	15.0	-	-	-	-	-	-	15.0	-	-
• Coke[s] powder	-	-	-	31.0	-	-	-	-	-	-	31.0	-
• Graphite	-	-	-	2.0	-	-	-	-	-	-	2.0	-
• Grass fiber	-	-	-	-	20.0	-	-	-	-	-	-	20.0
Wearing test result												
• Test condition												
• Partner material (*)	ADC-12	ADC-12	ADC-12	FC-25	SS-41	ADC-12	ADC-12	ADC-12	ADC-12	ADC-12	FC-25	SS-41
• Load (kg/cm <sup>2</sup> )	8.0	8.0	8.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	6.0	6.0
• Sliding speed (m/s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
• Wearing coefficient(**)(x 10 <sup>-6</sup> )	14.2	11.5	4.8	9.0	7.2	2791	14.1	5.9	46.0	12.1	49.3	12.6
• Friction coefficient (**)	0.226	0.193	0.255	0.288	0.36	0.185	0.203	0.285	0.252	0.244	0.348	0.37
A sliding temperature (°C)	76	75	83	78	93	73	80-82	88-90	95	85	133	143
Compression creeping test result (%)												
• 24 hours deform (MD)	6.4	4.9	3.5	3.5	11.2	14.0	11.0	7.7	9.4	5.8	4.9	12.4
• 24 hours deform (CD)	7.6	5.3	3.2	3.1	13.3	15.8	12.1	9.5	13.2	6.0	3.9	13.7
• Eternity deformation (MD)	3.2	2.6	1.7	1.7	6.5	7.6	6.4	4.3	5.1	3.1	1.8	7.1
• Eternity deformation (CD)	3.9	2.9	1.7	1.4	7.8	8.6	6.9	5.7	7.1	3.0	1.8	8.2

\* Partner material: ADC-12 [An aluminum alloy die-casting  
FC [4 kinds of Gray cast iron  
SS-41 [Rolled steel materials for general structure  
JIS H5302(1976)  
JIS G5501(1976)  
JIS G3101(1976)]

\*\* Unit of Friction coefficient and wearing coefficient:cm<sup>3</sup> • sec/kg • m • hr

*Please replace the paragraph at Page 11, lines 1-10, with the following:*

As is clear from the results of table 1, it is found that since the resin composition of each of the Examples comprising the tetrafluoroethylene polymer, the zinc oxide whisker and the fillers has extremely good thermal conductivity by contribution of a zinc oxide whisker ~~comparing~~ compared with resin compositions of each of the comparative examples that consisted of a tetrafluoroethylene polymer alone or with various fillers, the sliding temperature can be lowered, the coefficient of friction keeps constantly low and the wearing coefficient becomes smaller, and compression creeping property shows a small value.